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Tuberculosis, also known as TB, is a bacterial lung infection that primarily affects immunocompromised individuals and those living in congested or unsanitary environments. It is contagious and can be spread when an infected individual releases airborne droplet via coughing or sneezing. Although numerous antibiotics have been developed to eradicate the disease, recent strains of the bacteria have become drug-resistant and more difficult to treat. Tuberculosis has both a latent and an active form. Individuals with active TB are contagious and exhibit the following symptoms: a productive cough lasting 3 weeks or longer, hemoptysis, poor appetite, weight loss, chest pain, fever, chills, night sweats, and fatigue. Those with the latent form of the virus do not exhibit any symptoms and are not contagious. This is because the body's immune system is strong enough to manage the bacteria and keep it from growing. In the absence of strong immunity and in the presence of factors such as HIV and immunocompromising drugs, latent TB can become active, contagious, and symptomatic. Sputum and IGRA tests are the two categories of labs used to detect this disease.

Chronic Obstructive Pulmonary Disease, commonly abbreviated as COPD, is a disease that limits lung expansion and thus airflow. COPD is a progressive disease that is initiated with mild symptoms such as a simple cough. However, as it advances, it significantly decreases lung function and can produce symptoms such as a persistent cough with thick sputum, shortness of breath, frequent respiratory infections, wheezing, cyanosis, and chest tightness. To diagnose this disease, doctors will examine the patient's family medical history, conduct an incentive spirometry examination, and assess the arterial blood gas. In addition, chest x-rays and CT scans can be taken to gather more information about the condition of the lungs. In addition to diagnosis, these tests can give the doctor an idea of how severe the COPD is and what the best method of treatment will be. COPD is a chronic condition, so the damage it does cannot be reversed. However, treatments such as lifestyle changes and bronchodilators can improve symptoms and prevent further damage.

Pneumonia is an illness in which the alveoli of the lungs become infected, inflamed, and filled with pus or fluid. This produces symptoms various such as coughing, which is often accompanied by sputum, sweating, shortness of breath, fever, chills, and chest pain. There are many types of pneumonia that stem from diverse settings and circumstances. For example, hospital acquired pneumonia, community acquired pneumonia, and aspiration pneumonia. There also are numerous tests that aid in diagnosis, from sputum to blood tests, and they can also indicate which antibiotics should be used during treatment.

Chest tubes are devices that are used to remove air or fluids from the pleural cavity and re-expand the lungs. This is crucial to patient care since air or fluids in the pleural cavity can inhibit the expansion capacity of the lungs. When the lungs are unable to expand properly, tissue perfusion and oxygenation in the body can be severely compromised. Pleural cavity complications can result from several different issues such as trauma, pneumonia, and congestive heart failure. Chest tubes have one end with perforations and a firm, but flexible tube that connects to a suctioning system. The suctioning system can either be wet or dry. Wet suction systems are regulated by water in a chamber that is connected to the wall suction. This type can

have bubbling when it is working properly. Dry suction, on the other hand, does not rely on a water chamber and should have no bubbling when working properly.